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EXAMINER

HOLLOWAY III, EDWIN C

ART UNIT

PAPER NUMBER

2612

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 09/735,141	Applicant(s) FITZGIBBON ET AL.	
	Examiner Edwin C. Holloway, III	Art Unit 2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 14-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 14-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

EXAMINER'S RESPONSE

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10-20-2008 has been entered.

Claims 1-8 and 14-19 are pending. The examiner has considered the new presentation of claims and applicant's arguments in view of the disclosure and the present state of the prior art. And it is the examiner's position that the claims are unpatentable for the reasons set forth in this Office action:

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-2, 5, 7-8, 14-16 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu (6041410), Flick (6140939) and Waraksa (5412379).

Regarding claims 1-2, 5, 7-8, 14-16 and 19, Hsu teaches a garage door operating system that includes a fingerprint communicating unit 14 which includes a fingerprint sensor 16, see figures 2 and 3. The communication unit also includes a transmitter 22 that sends a signal to the barrier operator where it is received and authenticated to open the garage door. The signal includes a numeric value derived from a fingerprint and encrypted with key that varies with each operation. The door decrypts the signal and compares to stored values. If Hsu does not clearly show the fingerprint comparison occurring at the operator, then in an analogous art, Flick teaches

Art Unit: 2612

that either having the authentication comparison occur at the communicating unit or at the barrier operator are both equivalent methods with various pros and cons associated with each. See figures 5 and 6. Hsu does teach that communication from the key to the lock should be encoded or encrypted to prevent cloning by interception. See col. 4 lines 52+. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the fingerprint authorization occur at the barrier operator as suggested by Flick as an obvious alternative location for comparison to provide the same function of controlling access to a door or barrier. Further, comparison at the door may have allowed reduction in processing power necessary at the fingerprint communication unit.

In an analogous art, Waraksa teaches a rolling code used to mix up the ID or unlocking code of the portable device which the rolling code changed in accordance with a predetermined algorithm (col. 20 lines 38-47) to prevent cloning and unauthorized access. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have mixed a rolling code with the Hsu-Flick transmission since this would aid in preventing unauthorized access.

4. Claims 1-2, 5, 7-8, 14-16 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu (6041410), Flick (6140939) and Waraksa (5412379) as applied above and further in view of Gullman (US 5280527).

Gullman discloses combining fingerprint code with fixed code and time-varying code to generate an authorization code or token for secure access. The token may be displayed for input by the user, or transmitted to the access device. As an alternative to the time varying code, a host generated challenge code may be used. See the abstract and col. 2 lines 48-65, col. 3 lines 37-55,

Art Unit: 2612

col. 4 lines 3-22. The codes may be combined by a processor or an encryption module (col. 5 lines 11-20) and separated by decryption into components for comparison (col. 5 lines 23-33).

Gullman is applied as further evidence that claims 1-2, 5, 7-8, 14-16 and 19 would have been obvious in view of Hsu, Flick, and Waraksa because Gullman disclosing using a time varying code as an alternative to a host generated challenge - suggesting substituting the time varying rolling code of Waraksa for the door generated public key of Hsu - for reliable and secure identification for access control. Alternatively, or in addition, Gullman discloses encryption and decryption to combine and separate fingerprint, fixed, time varying codes for comparison that is evidence that it is proper to consider the encryption and decryption of Hsu to teach combining and separating of such codes would have been obvious. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included comparing the separated (fingerprint, fixed, time varying) components as disclosed in Gullman to provide advantages over systems which only compare a token to a value.

5. Claims 3 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu, Flick, Waraksa and Gullman (US 5280527) as applied above and further in view of Nicholls.

Regarding claims 3 and 17, Hsu-Flick-Waraksa does not expressly disclose use of an electroluminescent fingerprint sensor. Nicholls discloses an electroluminescent fingerprint sensor called a TactileSense[™] by Who?Vison[™] as an improvement over other common fingerprint sensors. It would have been obvious to one skilled in the art at the time of invention to substitute Hsu's optical fingerprint sensor for Nicholls electroluminescent fingerprint sensor since Nicholls discloses an advantage of electroluminescent fingerprint sensors over existing fingerprint sensors, such as the immunity to the 'dry finger problem' that existed in fingerprint

Art Unit: 2612

sensing technologies at the time of invention (Nicholls, pp 5). Who?Visontm also suggests the integration of such sensors into physical access control devices ("xlvision.com/spinoffs").

6. Claims 4 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu, Flick, Waraksa and Gullman (US 5280527) as applied above and further in view of Toyoda.

Regarding claims 4 and 18, Hsu-Flick-Waraksa does not teach the use of Charged Coupled Devices (CCDs). Toyoda teaches the use of CCDs to sense fingerprints in the production of identity authentication devices (Fig. 1). It would have been obvious to one skilled in the art at the time of invention to substitute Hsu's optical fingerprint sensor for Toyoda's identity authentication device using a CCD since Toyoda suggests that his device be used to manage entrance and exit of individuals in restricted areas (Col 1, lines 38- 40) and the use of Toyoda's identification device using CCD would provide an improved individual identification apparatus with a high recognition ability (Col 2, lines 38-42).

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu, Flick, Waraksa and Gullman (US 5280527) as applied above and further in view of Fitzgibbon (5751224).

Hsu-Flick-Waraksa does not expressly show the transmitter comprising a wall controller. In an analogous art, Fitzgibbon '224 shows the use of transmitter 34 that is a wall controller. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have mounted the Hsu-Flick transmitter on the wall of the garage since such would eliminate the need for the user to physically carry around the transmitter.

Response to Arguments

8. Applicant's arguments filed 2-28-2008 have been fully considered but they are not

Art Unit: 2612

persuasive.

The arguments relying on the Fitzgibbon Declaration are not persuasive for the reasons stated in the response to arguments and response to amendment in the previous action that are repeated after the current arguments.

The argument that the claimed invention is inexpensive because it does not require transmitting encrypted signals is not persuasive because applicant's claims do not exclude encrypted signals. Further, the field of the invention in applicant's specification is directed to transmissions that are encoded or encrypted. The field of the invention being directed to transmission of encrypted signals contradicts the excluding of transmitting encrypted signals. The argument transceivers, double encryption, and transmitting changing private key are not required is not persuasive because they are not excluded by the claims. The examiner notes that transceivers are known in rolling code systems to provide re-synchronization.

Applicant argues that the examiner acknowledges that Hsu does not show a comparison of fingerprint at the operator and replies to Flick disclosing this limitation with the argument that "so-what" there is no teaching of a combined code in Flick. The examiner can NOT agree with this line of argument. First, Hsu does disclose comparison of fingerprint data at the barrier (abstract). Second, Flick need not again teach a combined code that is already taught by Hsu and by Waraksa. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

The argument that Hsu lacks "constantly" changing authorization codes is not persuasive

Art Unit: 2612

because constantly changing is not claimed, nor has applicant pointed out support for such in the specification. Further, the fingerprint data in Hsu is combined (encrypted) with a rolling code (door public key that changes with each use) to provide a signal for verifying the identity of the user to authorize access.

The argument that Hsu lacks combining and separating an "always" changing code is not persuasive because "always" changing is not claimed nor has applicant pointed out support for such in the specification. Further, the encryption in Hsu is combining and the decryption in Hsu is separating, and the door private keys are changing. The arguments regarding transceivers are not persuasive because transceivers are not excluded by the claims for the reasons already stated above.

The argument that Flick lacks combining and separating an "always" changing code is not persuasive because "always" changing is not claimed nor has applicant pointed out support for such in the specification. Combining/separating is disclosed in Hsu and Waraksa. It need not be taught again by Flick. The argument that Flick lacks comparing a rolling code is not persuasive because this is already disclosed in Waraksa.

The argument that Waraksa has rolling codes but lacks rolling code combined with fingerprint data is not persuasive because Hsu already discloses combining rolling codes and fingerprint data. The argument that Waraksa lacks combining a fingerprint with an access code is not persuasive because this is NOT claimed. Combining with a rolling codes is claimed and the examiner has already responded to that argument. The argument that Waraksa uses a clock code rather than a rolling code is not persuasive because the title of the invention is "ROLLING CODE FOR A KEYLESS ENTRY SYTEM" and the CLOCK code is a changing or rolling

Art Unit: 2612

CLOCK code generated by adding an initial CLOCK code to a CONSANT to alter or update (change or roll) the CLOCK code in col. 10 line 62 - col. 11 line 31 and col. 13 line 60 - col. 14 line 15. This changing, rolling, altering or updating corresponds to an algorithm. Further, the clock code continually changes in claim 1 of Waraksa.

The argument that the applied art lacks a code that is a combination of a code representing a fingerprint and an ever changing rolling code is not persuasive because Hsu discloses a signal that is a combination of fingerprint code and changing code. It is not clear what applicant means by "ever changing," but such is not claimed.

Rejections have been applied that rely on Gullman as further evidence that it is know to combine fingerprint code with fixed code and time-varying code to generate a token and separating and comparing the components for secure access

The response to the arguments filed 2-28-2008 are repeated below:

Applicant argues that the declaration of Fitzgibbon establishes that it is true that the prior art did not recognize the problem of code grabbing because fingerprints were thought to be invulnerable. This argument is not persuasive for the reasons stated below under the heading "Response to Argument." Hsu, Flick and Waraksa did recognize vulnerabilities such as cloning, unauthorized learning and code theft corresponding to code grabbing. Further, the art cited but not applied by the examiner in the rejections did recognize vulnerabilities. For example, Scott added a password to increase security in case the transmitter was stolen and Wuidart added a varying or rolling code in case of code recording or grabbing.

Applicant argues that the prior art does not address or solve the problem of when a bad guys cut off a finger electronically with a code grabber to obtain the code representative of

Art Unit: 2612

fingerprint data because Hsu and Flick completely rely on use of a signal representing a fingerprint. This argument is not persuasive because Hsu and Flick do not completely rely on only use of a signal representing a fingerprint. As stated above, Hsu recognized that transmitted data related to fingerprint image (CRC derived from fingerprint image) is vulnerable to cloning. Hsu encrypted the data to reduce chances of unauthorized cloning or code grabbing. See col. 4 lines 47-56 and col. 7 lines 44-64 of Hsu. Also, Flick recognized that such a system is vulnerable to unauthorized learning in col. 2 lines 10-13.

Applicant argues that the system of the instant application recognizes the problem that if lost to a bad guy, the bad guy can use YOUR rolling code transmitter to get into the house or garage. This argument is not persuasive because Hsu recognizes the problem of a transmitter, card or other device being vulnerable to theft or being stolen (by a bad guy) in col. 1 lines 21-41. Also, the prior art (Swonger, Plaschko and Scott) argued in applicant's declaration recognizes the problem of a lost or stolen card or transmitter.

The argument that Hsu lacked suggestion of combining and separating codes is not persuasive because the encryption and decryption in Hsu (col. 6 lines 50-65, col. 7 lines 17-34) corresponds to combining and separating codes. The encryption combines the CRC code with key codes and decryption separates the combination.

The argument that Hsu does not suggest transmission of both rolling code and fingerprint data is not persuasive because the CRC is derived from and uniquely identifies the fingerprint image data (col. 5 lines 48-56). Further the CRC is encrypted (combined) with the door public key and the fob (transmitter) private key. A new door key pair is randomly generated with each access (col. 6 lines 42-42, col. 7 lines 13-16) so the keys cannot be determined in advance. This

Art Unit: 2612

suggests a rolling code.

The argument that Flick lacks suggestion of a rolling code is not persuasive because Hsu provides such a suggestion as indicated in the previous paragraph. The argument Flick, taken alone, lacks suggesting combining a code representative of the fingerprint with an access code and then splitting them is not persuasive because Hsu discloses this as discussed above and Waraksa also teaches combining a transmitter ID and rolling code in cols 10-11 to deter theft and separating the codes in col. 14. The argument that Flick, taken alone, lacks determining whether both fingerprint and rolling code are acceptable is not persuasive because Waraksa teaches requiring both the ID code and rolling code be acceptable in col. 14 lines 23-49 and Hsu teaches the CRC is a unique ID.

The argument that Waraksa, taken alone, lacks suggesting combining fingerprint code with changing access code and recognizing the fingerprint code as something that needs to be identified is not persuasive because Hsu already suggest this as discussed above. Waraksa discloses combining an ID with a rolling code and scrambling the result. This is suggested by Hsu disclosing encrypting the CRC with a changing public key and then encrypting the result with a private key.

Regarding applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

The argument that the art teaches it thought fingerprint data for security is invulnerable is not persuasive because the prior art teaches that fingerprint data (or other data) transmitted in an

Art Unit: 2612

unsecure manner is vulnerable theft, duplication or cloning.

Applicant argues that the prior art does not suggest a system that combines the use of signals representative of finger print data to guard against the loss or theft of the transmitter and the use of rolling code to defeat code grabbers. This argument is not persuasive because Hsu suggest fingerprint data to guard against loss or theft of the transmitter (col. 1 line 21 - col. 2 line 57) and the use of rolling code to defeat code grabbers (col. 7 lines 13-16).

Response to Amendment

9. The declaration under 37 CFR 1.132 filed 2-28-2008 is insufficient to overcome the rejection of claims 1-8 and 14-19 based upon 35 USC 103 as set forth in the last Office action because:

The inventors opinion is that the prior art discussed in the declaration (Swonger, Plaschko and Scott) establishes that one of ordinary skill in did not understand that wireless transmission of fingerprints were vulnerable to unauthorized code grabbing. It is noted that Swonger, Plaschko and Scott were not applied by the examiner in the 103 rejections.

The failure of the applicant's cited short passages in the backgrounds of Swonger, Plaschko and Scott to recognize the argued problem cannot be persuasive because the prior art applied by the examiner in the 35 USC 103 rejections does recognize the problem. Hsu recognized that transmitted data related to fingerprint image (CRC derived from fingerprint image) is vulnerable to cloning. Hsu encrypted the data to reduce chances of unauthorized cloning or code grabbing. See col. 4 lines 47-56 and col. 7 lines 44-64 of Hsu. Also, Flick recognized that such a system is vulnerable to unauthorized learning in col. 2 lines 10-13. Waraksa recognized that transmitted codes are vulnerable to theft. Waraksa combined the code

Art Unit: 2612

with a changing or rolling code in addition to scrambling the result to deter theft similar to Hsu teaching encrypting a the CRC with a changing key in addition to encrypting with a fixed key providing both change over time and scrambling to deter theft.

Applicant's cited passage from Swonger could not have recognized the problem of code grabbing of transmitting fingerprint images because it is not directed to transmitting fingerprints. But the passage of Swonger does recognize that a card could be lost, loaned or stolen. A transmitter would suffer from similar problems.

Applicant's cited passage from Plaschko recognizes that transmitters have the problem of being lost or stolen. Plaschko reduces this problem by requiring fingerprint input. Other problems are not discussed, nor are they excluded.

Applicant's cited passage from Scott could not have recognized the problem of code grabbing of transmitting fingerprint images because it is not directed to wireless transmission of fingerprints. Contrary to applicant's opinion, the passage of Scott does not disclose that fingerprints are invulnerable, but that fingerprint recognition devices prior to that of Scott were impractical for home or automobile use. The part of the paragraph not cited by applicant goes on to state that this ineffectiveness is due to cost. This teaches that there was a problem with fingerprint systems and other problems may exist. Col. 3 lines 14-16 describes using passwords in addition to the scanned image. This is a recognition that fingerprints alone may not provide sufficient security.

Swonger, Plaschko or Scott lacking recognition of code grabbing is irrelevant because the applied prior art (Hsu, Flick, Waraksa) does recognize problems of cloning, unauthorized learning and code theft corresponding to code grabbing.

Art Unit: 2612

Wuidart (US006164403A) is another patent with remote control transmitter and fingerprint reader that has been cited and not applied in the 103 rejections. Wuidart recognizes in col. 6 lines 13-56 that a code that changed with each transmission (rolling code) is desirable to hinder fraudulent attempts at picking up and recording (code grabbing) the signal.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Michaels (US 5420925) discloses a rolling code encryption process for keyless entry.

CONTACT INFORMATION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edwin C. Holloway, III whose telephone number is (571) 272-3058. The examiner can normally be reached on M-F from 9:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Zimmerman, can be reached on (571) 272-3059.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

1/7/2009
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/Edwin C. Holloway, III/
Primary Examiner, Art Unit 2612